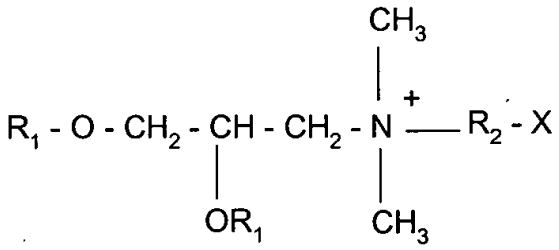
WHAT IS CLAIMED IS:

1. A method for obtaining an immunogenic response comprising administering to a bovine or porcine : (a) a DNA vaccine or immunogenic or immunological composition against a pathogen of a bovines or porcines, wherein the DNA vaccine or immunogenic or immunological composition comprises a plasmid containing a nucleotide sequence encoding an immunogen of a pathogen of the bovine or porcine, under conditions allowing the *in vivo* expression of this sequence, and a cationic lipid containing a quaternary ammonium salt, of formula



in which R_1 is a saturated or unsaturated linear aliphatic radical having 12 to 18 carbon atoms, R_2 is another aliphatic radical containing 2 or 3 carbon atoms, and X a hydroxyl or amine group, this lipid being preferably DMRIE, and optionally, DOPE and/or a GM-CSF protein of the bovine or porcine or a plasmid or expression vector which expresses the GM-CSF; and also optionally the nucleotide sequence encoding the immunogen is the sequence of a gene from which the part encoding the transmembrane domain has been deleted and/or the plasmid containing the nucleotide sequence encoding the immunogen also contains a nucleotide sequence encoding a heterologous signal sequence, preferably a tPA and/or the plasmid containing the nucleotide sequence encoding the immunogen also contains a stabilizing intron, preferably intron II of the rabbit

beta-globin gene; and (b) a conventional (inactivated, attenuated live, subunit) or recombinant vaccine or immunogenic or immunological composition against a bovine or porcine pathogen, wherein (a) and (b) are administered together in a combination, or sequentially, and sequentially can include a prime-boost administration.

2. The method according to claim 1 wherein the Vaccine or immunogenic or immunological composition according to (a) comprises a nucleotide sequence of BHV-1.

3. The method according to claim 2 wherein the Vaccine or immunogenic or immunological composition according to (a), comprises the sequence of the gB or gC or gD gene optimized by a signal sequence, in particular that of the tPA signal of human origin, in place of the sequence of the signal peptide of the glycoprotein gB or gC or gD, and/or by the deletion of the DNA fragment encoding the transmembrane domain of gB or gC or gD; or, the Vaccine or immunogenic or immunological composition according to (a) comprises DMRIE-DOPE, an expression plasmid encoding the BHV-1 gB antigen optimized by the deletion of the fragment of the nucleotide sequence encoding the transmembrane domain and the contiguous C-terminal part, a second expression plasmid encoding the BHV-1 gC antigen optimized by the deletion of the fragment of the nucleotide sequence encoding the transmembrane domain and the contiguous C-terminal part, and a third expression plasmid encoding the BHV-1 gD antigen optimized by the deletion of the fragment of the nucleotide sequence encoding the transmembrane domain and the contiguous C-terminal part.

4. The method according to claim 1 wherein the Vaccine or immunogenic or immunological composition according to (a) comprises a nucleotide sequence of BRSV.

5. The method according to claim 4 wherein the Vaccine or immunogenic or immunological composition according to (a)

comprises the sequence of the BRSV F or G gene optimized by substitution, by a signal sequence, in particular that of the tPA of human origin, of the signal sequence of the F or G protein of BRSV, and/or by the deletion of the DNA fragment encoding the transmembrane domain of F or G; or, the Vaccine or immunogenic or immunological composition according to (a) comprises DMRIE-DOPE, an expression plasmid encoding the F antigen of BRSV optimized by the insertion of the signal sequence of the human tPA in place of the signal sequence of F, and by the deletion of the fragment of the nucleotide sequence of F encoding the transmembrane domain and the contiguous C-terminal part, and a second expression plasmid encoding the G antigen of BRSV optimized by the insertion of the signal sequence of the human tPA in place of the signal sequence of G, and by the deletion of the fragment of the nucleotide sequence encoding the transmembrane domain of G and the contiguous C-terminal part.

6. The method according to claim 1 wherein the Vaccine or immunogenic or immunological composition according (a) comprises a nucleotide sequence of BVDV.

7. The method according to claim 6 wherein the Vaccine or immunogenic or immunological composition according to (a) comprises the sequence of the BVDV EO or E2 gene optimized by the addition of a signal sequence, in particular that of the tPA of human origin, upstream of the nucleotide sequence encoding the EO or E2 protein, and/or by the insertion of an intron, in particular intron II of the rabbit beta-globin gene upstream of the nucleotide sequence encoding EO or E2; or, the Vaccine or immunogenic or immunological composition according to (a) comprises DMRIE-DOPE, an expression plasmid encoding the EO antigen of BVDV optimized by the insertion of the signal sequence of the human tPA upstream of EO and by the insertion of intron II of the rabbit beta-globin gene upstream of EO, and a second plasmid encoding the E2 antigen of BVDV optimized by the

insertion of the signal sequence of the human tPA upstream of E2, by the deletion of the fragment of the nucleotide sequence encoding the transmembrane domain of E2 and by the insertion of intron II of the rabbit beta-globin gene upstream of E2.

8. The method according to claim 1 wherein the Vaccine or immunogenic or immunological composition according to (a) comprises a nucleotide sequence of bPI-3.

9. The method according to claim 8 wherein the Vaccine or immunogenic or immunological composition according to (a) comprises the sequence of the bPI-3 HN gene optimized by substitution, by a signal sequence, in particular that of the tPA of human origin, of the signal sequence of HN or F, and/or by the deletion of the DNA fragment encoding the transmembrane domain of HN or F, and/or by the insertion of an intron, in particular of intron II of the rabbit beta-globin gene upstream of the nucleotide sequence encoding HN or F; or the Vaccine or immunogenic or immunological composition according to (a) comprises DMRIE-DOPE, an expression plasmid encoding the HN antigen of bPI-3 optimized by the insertion of the signal sequence of the human tPA in place of the signal sequence of HN, by the deletion of the fragment of the nucleotide sequence of HN encoding the transmembrane domain and the contiguous C-terminal part and by the insertion of intron II of the rabbit beta-globin gene upstream of HN, and a second expression plasmid encoding the F antigen of bPI-3 optimized by the insertion of the signal sequence of the human tPA in place of the signal sequence of F, by the deletion of the fragment of the nucleotide sequence encoding the transmembrane domain of F and the contiguous C-terminal part and by the insertion of intron II of the rabbit beta-globin gene upstream of F.

10. The method according to claim 1 wherein the Vaccine or immunogenic or immunological composition according to (a) comprises a nucleotide sequence of PRV.

11. The method according to claim 10 wherein the Vaccine or immunogenic or immunological composition according to (a) comprises the sequence of the gB or gC or gD gene optimized by substitution, by a signal sequence, in particular that of the tPA signal of human origin, of the sequence of the signal peptide of the gB or gC or gD glycoprotein, and/or by the deletion of the DNA fragment encoding the transmembrane domain of gB or gC or gD; or the Vaccine or immunogenic or immunological composition according to (a) comprises DMRIE-DOPE, an expression plasmid encoding the gB antigen of PRV optimized by the deletion of the fragment of the nucleotide sequence encoding the transmembrane domain and of the contiguous C-terminal part, a second expression plasmid encoding the gC antigen of PRV optimized by the deletion of the fragment of the nucleotide sequence encoding the transmembrane domain and of the contiguous C-terminal part, and a third expression plasmid encoding the gD antigen of PRV optimized by the deletion of the fragment of the nucleotide sequence encoding the transmembrane domain and of the contiguous C-terminal part.

12. The method according to claim 1 wherein the Vaccine or immunogenic or immunological composition according to (a) comprises a nucleotide sequence of PRRSV.

13. The method of claim 12 wherein the Vaccine or immunogenic or immunological composition according to (a) comprises a nucleotide sequence of the ORF3 or ORF5 or ORF6 gene optimized by substitution, by a signal sequence, in particular that of the tPA signal of human origin, or the sequence of the signal peptide of the protein encoded by ORF3 or ORF5 or ORF6, and/or by the deletion of the DNA fragment encoding the transmembrane domain of ORF3 or ORF5 or ORF6; or, the Vaccine or immunogenic or immunological composition according to (a) comprises DMRIE-DOPE, an expression plasmid encoding the ORF3 antigen of PRRSV, a second expression plasmid encoding the ORF5 antigen of

PRRSV optimized by substitution of the signal sequence of ORF5 by the human tPA signal peptide sequence and by the deletion of the fragment of the nucleotide sequence encoding the transmembrane domain and the contiguous C-terminal part, and a third expression plasmid encoding the ORF6 antigen of PRRSV optimized by the substitution of the signal sequence of ORF6 by the human tPA signal peptide sequence and by the deletion of the fragment of the nucleotide sequence encoding the transmembrane domain and the contiguous C-terminal part.

14. The method according to claim 1 wherein the Vaccine or immunogenic or immunological composition according to (a) comprises a nucleotide sequence of SIV.

15. The method according to claim 14 wherein the Vaccine or immunogenic or immunological composition according to (a) comprises a nucleotide sequence of the HA or NA gene optimized by substitution, by a signal sequence, in particular that of the tPA of human origin, of the signal sequence of HA or NA, and/or by the deletion of the DNA fragment encoding the transmembrane domain of HA, and/or by the insertion of an intron, in particular of intron II of the rabbit beta-globin gene upstream of the nucleotide sequence encoding HA or NA; or the Vaccine or immunogenic or immunological composition according to (a) comprises DMRIE-DOPE, an expression plasmid encoding the HA antigen of SIV optimized by the insertion of the signal sequence of the human tPA in place of the signal sequence of HA, by the deletion of the fragment of the nucleotide sequence of HA encoding the transmembrane domain and the contiguous C-terminal part, and by the insertion of intron II of the rabbit beta-globin gene upstream of HA, and a second expression plasmid encoding the NA antigen of SIV optimized by the insertion of the signal sequence of the human tPA in place of the signal sequence of NA, by the deletion of the fragment of the nucleotide sequence encoding the transmembrane domain of NA and the contiguous C-terminal

part, and by the insertion of intron II of the rabbit beta-globin gene upstream of NA.

16. The method of claim 1 wherein (a) and (b) are sequentially administered, whereby there is a first administration of (b), followed by a subsequent administration of (a).

17. The method of claim 16 wherein (b) is a conventional vaccine or immunogenic or immunological composition.

18. The method of claim 1 wherein the Vaccine or immunogenic or immunological composition according to (a) also comprises DOPE.

19. The method of claim 1 wherein the Vaccine or immunogenic or immunological composition according to (a) additionally comprisesa bovine or porcine GM-CSF protein or an expression vector containing the gene encoding the GM-CSF protein, under conditions allowing the *in vivo* expression of this sequence.

20. A kit comprising (a) and (b) of claim 1 in separate containers, optionally in the same package, and optionally instructions for admixture and/or administration.